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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,369	03/17/2004	Art Whitworth	2-5760-001	3797

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206 SIXTH AVENUE
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DES MOINES, IA 50309-4076

EXAMINER

HANAN, DEVIN J

ART UNIT	PAPER NUMBER
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3745

DATE MAILED: 07/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

SA

Office Action Summary

Application No.

10/802,369

Applicant(s)

WHITWORTH, ART

Examiner

Devin Hanan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/17/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Objections

Claims 1-15 are objected to because of the following informalities: The word "modified" (as in the phrase "the modified savonius rotor") is not needed, as all different Savonius rotors are in a sense modified. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In the specification, the applicant states, "The set of modified Savonius rotors (405, 410, 415) in the assembly (400) are rigidly affixed to a shaft (420) which rotates as the modified Savonius rotors (405, 410, 415) rotate (page 6 lines 22-24)", to establish that all of the rotors are attached to one shaft. The claim states that the, "rotors are rotated with respect to one another," which is inconsistent with the specification. If they are on the same shaft there is no relative rotation when comparing one rotor's position to the next rotor's position. Correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 11 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Benesh (U.S. Patent 5,494,407).

Benesh discloses a savonius rotor with

(a) a least one vane having at least one concave and at least one convex side (20 has a convex and concave side); and

(b) at least one exhaust channel on each at least one vane, each of said at least one exhaust channel providing a flow path permitting air to pass through the modified Savonius rotor vane from the concave side to the convex side of each at least one vane of the modified Savonius rotor (exhaust can travel between blades 20 and 20' to respective freestreams).

Regarding claim 2, Benesh discloses at least one vane comprises an "S" shaped vane when viewed from an axis of rotation (blades 20 and 20' in figure 2).

Regarding claim 3, Benesh discloses exhaust channel is constructed so that air passing through the exhaust channel enters a freestream (exhaust can travel between blades 20 and 20' to respective freestreams).

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Regarding claim 4, Benesh discloses circular support plates operably affixed to a top and a bottom of the modified Savonius rotor, wherein said circular support plates are symmetric about an axis of rotation (14, 16 in figure 1).

Regarding claim 5, Benesh discloses the circular support plates have a diameter substantially equal to an overall length of the modified Savonius rotor vane (14, 16 in figure 1).

Regarding claim 11, Benesh discloses a method of configuring a modified Savonius rotor with at least one vane, each modified Savonius rotor vane having at least one concave and at least one convex side (20 has a convex and concave side), the method comprising providing at least one exhaust channel to permit air to pass through the modified Savonius rotor vane from the concave side to the convex side (exhaust can travel between blades 20 and 20' to respective freestreams).

Regarding claim 11, Benesh discloses forming the at least one vane in an "S" shape when viewed from an axis of rotation (figure 2).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6, 7 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benesh in view of Bunnell (U.S. Patent 1,200,308).

Benesh discloses all of the above claimed elements but does not disclose a plurality of vertically disposed blades that are operably fastened to one another.

However, Bunnell teaches of a plurality of vertically disposed blades that are operably/rigidly fastened to one another, sharing on one axis (figure 3) to catch larger fluid flows (page 2, lines 5-10).

Since Benesh and Bunnell are both from the same field of endeavor, the Savonius rotor art, the teaching of Bunnell would have been recognized in the pertinent art of Benesh. It would have been obvious to one of ordinary skill in the art at the time the invention was made to stack the rotors of Benesh; as taught by Bunnell in order to capture larger fluid flows (page 2, lines 5-10).

Claims 8 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benesh in view of Lockwood (U.S. Patent 4,369,629).

Benesh discloses all of the above claimed elements but does not disclose photovoltaic cells affixed to the outside surfaces of the rotor.

However, Lockwood teaches of affixing photovoltaic cells to the outside surface of a Savonius rotor (figure 4, 10) for the purpose of serving as a secondary energy system (col. 3, lines 10-40).

Since Benesh and Lockwood are from the same field of endeavor, the Savonius rotor art, the teaching of Lockwood would have been recognized in the pertinent art of Benesh. It would have been obvious to one of ordinary skill in the art at the time the invention was made to affix photovoltaic cells to the outside surface, as taught by

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Lockwood, to the rotors of Benesh in order to serve as a secondary electrical energy source (col. 3, lines 10-40).

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Benesh in view of Lockwood and further in view of Themel (U.S. Patent 6,666,650).

Benesh as modified by Lockwood in the rejection of claim 8, above, disclose all of the above claimed elements but does not disclose photovoltaic cells affixed to the outside surfaces of the rotor.

However, Themel teaches of having a cone serving as the top of the wind turbine device in order to leave room of the shaft (figure 1).

Since Benesh (as modified by Lockwood) and Themel are both from the same field of endeavor, the Savonius rotor art, the teachings of Themel would have been in the pertinent art of Benesh. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the rotor of Benesh by adding a cone to the top of the wind turbine, as taught by Themel for the purpose of adding space for the shaft (figure 1), and to affix photovoltaic cells to the outside surface of the cone, as taught by Lockwood for the purpose of serving as a secondary electrical energy source (col. 3, lines 10-40).

Claims 10 and 15 are rejected under 35 USC 103(a) as unpatentable over Benesh in view of Lockwood and Themel. Benesh, as modified in the rejection of claims 9 and 14 (respectively) above, teaches of a Savonius rotor having a top cone

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with the apex facing upwards with solar cells affixed to it in a regular pattern, not a plurality of isosceles triangle shapes as claimed. It is common practice in the art of photovoltaic cell attachment to incline the cells to overcome problems that arise when trying to cover a round surface with a rigid flat object. Additionally, the inclination of photovoltaic cells would allow for the circular rows of cells around a cone to be formed more easily. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify the Savonius rotor of Benesh by inclining the adjacent cells of a circular row in order to better form the circular rows of cells to make a cone as an engineering expedient.

Prior Art

The patent to Norton et al. (U.S. Patent 4,005,947) was cited for its teaching of a different kind of exhausting channel of a Savonius rotor.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Devin Hanan whose telephone number is 571-272-6089. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look can be reached on 571-272-4820. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Devin Hanan
Art Unit 3745
Patent Examiner



EDWARD K. LOOK
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2/25/05